

an electrically insulative submount core having a top surface, an opposite bottom surface, and first and second side surfaces;

a first electrically conductive layer covering only a part of a first side surface thereby leaving an exposed area of the first side surface adjacent to the bottom surface;

a second electrically conductive layer covering only a part of a second side surface thereby leaving an exposed area of the second side surface adjacent to the bottom surface;

an electrical connector between the first and second electrically conductive layers; and

a metallic heat exchanger in thermal contact with the bottom surface ; and

wherein the first contact surface of each of the diode bars is directly adjacent to and in electrical contact with the first conductive layer of one of the plurality of submounts and the second contact surface of each of the diode bars is directly adjacent to and in electrical contact with the second conductive layer of another one of the plurality of submounts such that only a single laser diode bar separates the one of the submounts from the another one of the submounts.

2. The laser diode array of claim 1, wherein the bottom surface of the at least one submount is connected to the heat exchanger via a solder layer.

3. The laser diode array of claim 1, wherein the first contact surface is a p-contact and the second contact surface is an n-contact and wherein the p-contacts and n-contacts of the laser diode bars are coupled to the conductive layers of the submounts via a solder layer or a solder foil.

4. The laser diode array of claim 3, wherein the solder is a gold-tin solder.

5. The laser diode array of claim 1, wherein the submount core is composed of one of the group of Aluminum Nitride (AlN), Beryllium Oxide (BeO) or CVD Diamond.

6. The laser diode array of claim 1, wherein the connector is a conductive layer on the top surface.

7. The laser diode array of claim 1, wherein the submount core includes a lateral side surface between the first and second side surfaces, wherein the connector is a lateral metal layer on the lateral side surface.

8. The laser diode array of claim 1, wherein the submount core includes a via between the side surfaces, wherein the connector is a conductive material in the via in electrical contact with the conductive layers.

9. The laser diode array of claim 1, wherein the conductive layers are one of a group of copper, gold, nickel, titanium and platinum.

10. A laser diode package in an assembly to be used in a laser diode array having a plurality of laser diode packages, the assembly comprising: the laser diode package including:

a first submount having an electrically insulative core with a top surface, a bottom surface, and first and second side surfaces located between the top and bottom surfaces, the submount having a continuous electrically conductive layer positioned on the top surface and on portions of the first and second side surfaces adjacent to the top surface, a lowermost end of the continuous electrically conductive layer on each of the first and second side surfaces being spaced away from the bottom surface of the electrically insulative core; and

a laser diode bar including a first contact and a second contact opposite the first contact, the first contact attached via a solder bond to the first side surface such that the laser diode emits energy from a region adjacent to the top surface; and

a second submount having an electrically insulative core with a top surface, a bottom surface, and first and second side surfaces located between the top and bottom surfaces, the submount having a continuous electrically conductive layer positioned on the top surface and on portions of the first and second side surfaces adjacent to the top surface, a lowermost end of the continuous electrically conductive layer on each of the first and second side surfaces being spaced away from the bottom surface of the electrically insulative core, the second submount attached to the second contact of the laser diode bar via a solder bond to second side surface, such that only the laser diode bar separates the first and second submounts.

11. The laser diode package of claim 10, further including a metallic layer on the bottom surface of the electrically insulative core for contacting a solder material to attach the laser diode package to a heat exchanger.

12. The laser diode package of claim 10, wherein the distance between the top and bottom surface of the submount is 1.5 to 2.4 mm, and a distance from the lowermost end of the continuous electrically conductive layer to the bottom surface is between about 20% to 40% of the distance between the top and bottom surface.

13. The laser diode package of claim 10, wherein the electrically insulative core is composed of one of the group of Aluminum Nitride (AlN), Beryllium Oxide (BeO) or CVD Diamond.

14. The laser diode package of claim 10, wherein the solder bonds are a gold-tin solder.

15. The laser diode package of claim 10, wherein the conductive layer is one of a group of copper, gold, nickel, titanium and platinum.

16. A laser diode array comprising:

a plurality of laser diode packages, each of the packages including:

a submount having an electrically insulative core with a top surface, a bottom surface, and first and second side surfaces located between the top and bottom surfaces, the submount having a continuous electrically conductive layer positioned on the top surface and on portions of the first and second side surfaces adjacent to the top surface, a lowermost end of the continuous electrically conductive layer on each of the first and second side surfaces being spaced away from the bottom surface of the electrically insulative core; and

a laser diode bar attached via a solder foil layer to the first side surface such that the laser diode emits energy from a region adjacent to the top surface; and

a thermal reservoir being thermally coupled to the bottom surfaces of each submount via a lower temperature solder than the solder foil layer and

wherein the laser diode bar is attached via another solder foil layer to a second side surface of another submount of another laser diode package of the plurality of the laser diode packages such that only the laser diode bar separates the submount from the another submount.